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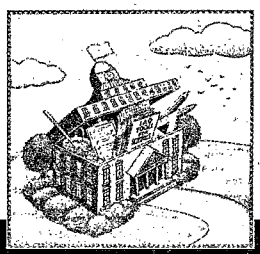

IAQ Tools for Schools

BULLETIN

SPECIAL SYMPOSIUM SUPPLEMENT

A PUBLICATION OF THE OFFICE OF RADIATION AND INDOOR AIR

A Note from the Director ...

Welcome to a special symposium supplement to the *IAQ Tools for Schools* Bulletin. On behalf of my colleagues at EPA, I wish to share our excitement about the success of the first *Indoor Air Quality Tools for Schools* National Symposium. This special edition of the Bulletin shares lessons learned from the Symposium presenters and working groups, and highlights the Award winners.

Fulfilling its goal, the Symposium facilitated discussion and problem-solving among health professionals, administrators, School Board officials, facilities managers, teachers, parents, and school staff from across the country. Everyone took time out of their busy schedules to concentrate for two full days on one very important issue—indoor air quality in our nation's schools—and learned a lot from each other's experiences.

Indoor air quality is an increasingly prominent concern for school systems across the United States. One in five Americans spends their day in schools, and studies show that half of our nation's schools have problems linked to indoor air quality. Therefore, we were especially proud to hold a reception at the Symposium to present the *Indoor Air Quality Tools for Schools* Excellence Award to 10 school districts that have proven themselves as IAQ leaders—districts that are taking an active stance on improving indoor air quality in schools and, often, overcoming obstacles to do so.

EPA urges all schools to implement good IAQ practices. The *Indoor Air Quality Tools for Schools* Kit (the Kit) and program provide schools with the resources to help accomplish this goal. The Kit describes simple, low-cost measures that can improve indoor air quality and create a healthy learning and working environment for students and staff.

We hope the enthusiasm generated by the Symposium will help you to implement the Kit if you haven't already. Whether you are teaching in a rural school, managing the facilities in an urban school district, or sponsoring an *IAQ TfS* workshop, we would like to hear from you as we work together to improve our nation's learning environment.

In 2001, I hope you will share in the rewarding experience of the second National *IAQ TfS* Symposium. We look forward to seeing you there!

Mary T. Smith
Director, Indoor Environments Division, EPA

Mary Smith, EPA, Speaks to Symposium attendees

Indoor Air Quality Tools for Schools National Symposium — A Success!

Student performance, increasing absenteeism due to asthma and allergies, teacher and student complaints of headaches—these issues, witnessed across the country, are raising indoor air quality (IAQ) issues to the forefront of school action agendas.

Recognizing this, the US Environmental Protection Agency's (EPA) Indoor Environments Division, together with several national school and health-based community associations, conducted a symposium to bring together individuals concerned with these issues. From August 3-5, 2000, some 250 stakeholders from more than 40 states and representatives from other countries including Canada and Japan, gathered in Baltimore, Maryland, for a 3-day conference—the first *Indoor Air Quality Tools for Schools* National Symposium. Among the participants were school nurses, teachers, administrators, health professionals, government officials, and facility managers. EPA and several national school and health-based associations organized the Symposium to:

- Bring IAQ stakeholders of various backgrounds together.
- Promote the adoption of good IAQ practices.
- Facilitate *Indoor Air Quality Tools for Schools* Kit implementation.
- Present awards to school systems with outstanding IAQ achievements.

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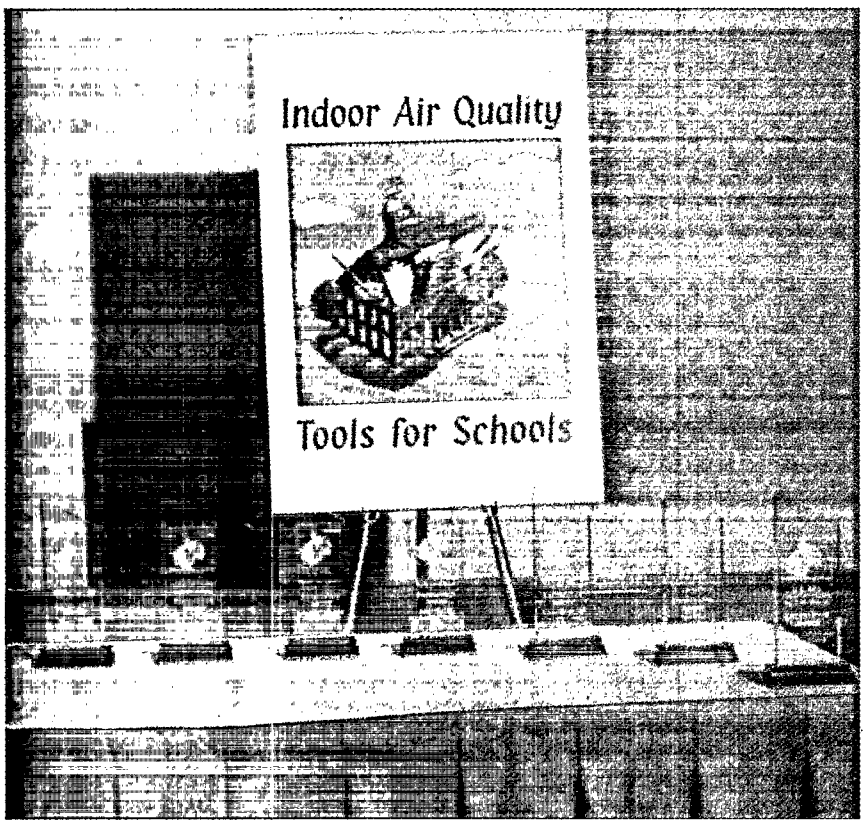
INSIDE THIS ISSUE

Bob Perciasepe, EPA Assistant Administrator for Air and Radiation

EPA launches the *IAQ Tools for Schools* Awards Program

EPA launched its *Indoor Air Quality Tools for Schools* (*IAQ TfS*) Awards Program at the August 2000 Symposium, honoring 10 school districts for their commitment to ensuring a healthy environment in their schools. Having each been nominated by one of EPA's 10 regional offices, the winning districts received the first annual *Indoor Air Quality Tools for Schools (IAQ TfS)* Excellence Awards at a reception held the first evening of the Symposium. Bob Perciasepe, EPA Assistant Administrator for Air and Radiation, was on hand to present the awards and congratulate the winners in a room packed with their peers.



Mr. Perciasepe explained that EPA's Indoor Environments Division established the *IAQ TfS* Awards Program to recognize schools and school districts, such as these, that take a leadership role in implementing indoor air quality programs and raising public awareness of health-related IAQ issues in schools. Following the reception, the school districts received national press coverage in an EPA press release. Some districts also received local press coverage of their achievements.

In 2001, the *IAQ TfS* Awards Program will be competitive; any school or district can apply or be nominated. The Award criteria and application form will be available soon on EPA's *Indoor Air Quality Tools for Schools* Web site at www.epa.gov/iaq/schools. The Awards will recognize schools or districts for achieving certain levels of IAQ implementation progress. We anticipate these award levels will include:

- Progress Award
- Full Implementation Award
- National *IAQ TfS* Excellence Award

All schools and districts that meet the implementation requirements, as outlined on the Awards application, will receive recognition for their efforts including certificates, plaques, and/or mention on EPA's *IAQ TfS* Web site. The schools or districts chosen as the *IAQ TfS* Excellence Award winners will each receive an *IAQ TfS* Award, a press kit, and a success story posted on the IAQ Web site. These national winners will also be included in EPA press releases and honored at the 2001 National Symposium. Excellence Awards will be given to schools that not only implement good IAQ practices, but also take extra steps to promote IAQ education for staff, students, and the community.

Evaluation criteria will be outlined in the online award application. Check EPA's IAQ Web site regularly and future *IAQ Tools for Schools (IAQ TfS)* Bulletins for updates.

Fast Facts

Temperature and humidity complaints, while not a direct risk to occupant health, may indicate more serious ventilation problems in the school building. Furthermore, temperature and humidity are among the many factors that affect indoor contaminant levels.

Nearly 90 percent of US schools were built before 1980, and 50 percent prior to 1960. Although indoor air quality problems can occur in any old or new building, increased risks in older buildings may be due to outdated ventilation systems, deferred maintenance, and older roofs that leak.

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Barb Sattler, Dr PH, RN, UMD School of Medicine and Nursing, talks with Symposium participant, Paula Kandel.

The Symposium began with brief presentations on key indoor air quality issues and the use of EPA's *IAQ TfS* Kit. Keynote speakers included Bob Perciasepe, EPA's Assistant Administrator for the Office of Air and Radiation, and Mary Smith, Director of EPA's Indoor Environments Division. Roundtable discussions and problem-solving activities based on common IAQ scenarios in schools rounded out the first day. At an awards ceremony that evening, participants continued their spirited discussions of indoor air quality and were treated to the premiere of EPA's latest video, which spotlights IAQ challenges faced by schools nationwide.

On the second day, IAQ stakeholders from Bensalem School District, Minneapolis Federation of Teachers, and the American Lung Association of Ohio shared their success stories and offered tips on forming an IAQ team and implementing good IAQ practices. Then, in five breakout sessions, participants explored select topics related to *Indoor Air Quality Tools for Schools* implementation. These sessions benefitted newcomers as well as veteran Kit users still facing IAQ challenges. In most cases, what started out as an information gathering and sharing session evolved into an exercise in brainstorming and problem solving, as participants actively sought solutions to barriers en route to an effective IAQ program for their schools. Executive summaries from the five breakout sessions are included on pages 4-5 and 10 in this supplemental edition of EPA's *IAQ TfS* Bulletin.

On the final day of the Symposium, participants broke into small groups to develop action plans for their school systems using strategies and practices discussed in earlier sessions. Participants created sample IAQ action plans, incorporating the specific needs and skills of each member of a potential IAQ team—a school nurse, principal, School Board member, teacher, facilities manager, or parent.

In addition to these valuable hands-on sessions, the Symposium honored 10 schools for their environmental leadership through outstanding efforts to create healthier indoor environments for students and staff. These schools received EPA *IAQ TfS* Excellence Awards for their achievements and the opportunity to share advice and IAQ materials with Symposium attendees. You can read about their achievements on pages 6-7. Discover how your school can apply for EPA's *IAQ TfS* Awards for the 2001 Symposium on page 2.

Participants said they found the Symposium to be an extremely valuable networking opportunity to share experiences and lessons learned with EPA staff and school personnel from around the nation. The interaction enabled IAQ stakeholders to discuss school environmental and health issues and share their challenges and successes in implementing the Kit. According to Shanwne Albright, Director of Lung Health Programs at the American Lung Association of Alaska, "The most helpful thing is being able to speak one-on-one with people from other parts of the country and to share and exchange indoor air quality experiences." Copies of the *Indoor Air Quality Tools for Schools* Symposium Proceedings can be obtained on our Web site at www.epa.gov/iaq/schools.

Partner Network's Contributions Spell Success

The first *Indoor Air Quality Tools for Schools* National Symposium was sponsored by a partnership established by EPA and a number of national associations committed to working with EPA to improve the indoor air quality in our nation's schools. These associations are part of the Indoor Environments Division's Partner Network, a group that plays an essential role in supporting the *Indoor Air Quality Tools for Schools* program. At the *Indoor Air Quality Tools for Schools* National Symposium, the efforts of the American Association of School Administrators (AASA), the American Lung Association (ALA), the International City/County Management Association (ICMA), the National Association of Counties (NACo), the National Association of School Nurses (NASN), and the National Education Association (NEA) Health Information Network helped ensure that the presentations and discussion sessions ran smoothly and were positive, insightful experiences for all conference attendees.

AASA hosted the Symposium, and the other members of the Partner Network sponsored one of the five breakout sessions. "Making IAQ a Priority: Linking Health and Learning" was sponsored by NASN, "Addressing Liability and Media Concerns" by ICMA, "Making Time for IAQ Management" by ALA, "Opening the Lines of Communication: Building an IAQ Team" by NEA, and "Financing Tools for Schools: Fact and Fiction" by NACo.

Associations in the Partner Network serve as valuable resources for schools looking to implement IAQ programs. Some of these associations contributed to the development of the *IAQ TfS* Kit while others provide *Indoor Air Quality Tools for Schools* training, host workshops, and support pilot programs. Some of their representatives even serve on IAQ teams. For more information on how the Partner Network can help your school in its IAQ efforts, visit our Web site at www.epa.gov/iaq/schools.

Symposium Breakout Sessions

The Heart of the Symposium: Breakout Session Summaries

Session: Making IAQ a Priority—Linking Health and Learning

Poor indoor air quality can result in negative health consequences, which in turn have a negative impact on learning. Many indoor air quality problems in schools affect the health of students and staff, especially those with asthma and allergies. Recurring health problems—such as headaches, fatigue, coughing, sneezing, dizziness, nausea, and eye, nose, and throat irritation (common signs of the flu)—may be a sign of poor indoor air quality, especially if symptoms improve after leaving the building.

Many sources of IAQ problems in schools, such as molds and pet dander, contribute to increased asthma episodes and absenteeism. If students and staff are frequently absent from school due to health problems associated with poor IAQ, they are not able to learn and teach effectively. This session, sponsored by the National Association of School Nurses, focused on ways to make indoor air quality a priority.

Assessing health complaints and linking them to indoor air quality problems can be difficult. Session participants were all familiar with the reaction, "IAQ is just not a priority for us right now." Conference participants stressed that research is needed to evaluate the effect of poor IAQ on student and teacher performance. This information can help persuade school decision makers to actively support IAQ programs.

In the meantime, participants suggested that EPA continue to develop strong case studies that illustrate the health benefits of implementing an IAQ program. EPA would like to hear from schools or school districts that have seen the practical health benefits of implementing the *IAQ TfS* Kit or an IAQ program. In addition, EPA urges IAQ coordinators to use the problem solving wheel, found in the *IAQ TfS* Kit, to identify potential sources of pollutants contributing to poor IAQ. These sources may be directly related to health complaints.

Session: Addressing Liability and Media Concerns

Should negative media coverage regarding IAQ problems in schools occur, the result is a loss of trust in the school system by its constituents and, potentially, a loss

of money by the school system. Liability costs can be substantial—mold and mildew infestation in a court house in Polk County, Florida, caused $40 million in litigation and restoration costs. Presenters at this session shared numerous examples illustrating the monetary and liability impacts of ignoring IAQ problems. They explained that ignoring IAQ issues does not free school officials of liability, and schools may end up in litigation because nothing has been done to correct IAQ problems. Instead, officials should engage in a strong course of action to prevent litigation. The goals are to be able to (1) say that the situation has been investigated, (2) show that there is or is not a causal relationship between symptoms and the building's air quality, and (3) present data to support this assertion.

The session, sponsored by the International City/County Management Association, also addressed the tough decision of whether to deal with IAQ problems openly or quietly behind the scenes. According to Barbara Hunter of Alexandria Public Schools in Virginia, avoiding surprises and preventing rumors related to IAQ issues requires schools to be up-front with staff, students, parents, and the public by adopting pro-active outreach and media strategies. Building strong relationships with the press by being honest with them about IAQ issues when they first appear; allowing the media to chronicle the IAQ walkthroughs, test results, and plans for improvement; and pitching positive stories on IAQ efforts can help your school system avoid negative press coverage.

While this proactive strategy is preferable, schools sometimes find themselves in the awkward position of reacting to public concern generated from negative media coverage. Ms. Hunter shared some action tips to help deal with this situation.

- Within the first two hours following the IAQ crisis, generate a press release that confirms the facts, notes the school's concern, outlines an action plan for assistance, and sets a schedule for providing updated information.

- Between four and six hours later, hold a news briefing to provide information, introduce the leadership of the school district, set ground rules for media coverage, and offer sources for updated information.
- During the next 12 to 24 hours, provide any new information to dispel rumors, offer experts to address concerns/questions, share a plan to move ahead, and give a schedule for additional updates.
- Beyond this 24-hour period, make sure to keep the media informed, show how town agencies are working together, and provide school tours for the media.

Session: Financing Tools for Schools—Fact and Fiction

Sponsored by the National Association of Counties, this session provided a forum for discussing the real costs of poor indoor air quality to a school system. Many IAQ improvements are low-cost or require no additional direct cost to schools. These include staff time to carry out common-sense preventive measures, staff time to educate children or other staff about good indoor air quality, and free resources such as the *IAQ TfS* Kit. Some IAQ improvements, however, may be expensive because they involve large systems such as roofs, flooring, windows, lighting, or ventilation. This session focused on different funding sources schools can use when implementing an IAQ management plan in their school districts, and how significant costs can be avoided by preventative maintenance of school equipment.

Funding for expensive IAQ improvements can come from a variety of funding sources and may include the capital budget, the operating budget, and money from grants, rebates, or fundraisers. The challenges of financing IAQ improvements using each of these sources were reviewed. Linking IAQ improvements to energy-efficiency upgrades—particularly heating, ventilating, and cooling (HVAC) system upgrades—is an innovative and often profitable way to bundle important systemic improvements. Hundreds of schools nationwide have reaped significant cost savings in their utility budgets from energy-efficiency projects. Third-party financing and tax-exempt lease-purchase agreements were suggested as practical methods for many school districts to take advantage of when faced with "big-ticket" investments in equipment and infrastructure that would improve IAQ.

On returning to their respective school districts, workshop participants were encouraged to:

- Share the knowledge about financing IAQ improvements they gained at the Symposium with as many stakeholders as possible.
- Make sure that their local schools take advantage of all free services, materials, and training that can aid in financing IAQ improvements.
- Support ongoing maintenance of equipment and facilities to avoid costs of IAQ remediation due to faulty equipment or equipment replacement.
- Learn about the budget process in the district and how monies are allocated to various capital projects.
- Find out what the energy costs are per year in the operating budget and discuss with the facilities staff whether energy-efficiency measures could bundle IAQ measures and still yield savings that would make the projects attractive to financing entities.
- Be willing to join forces with all stakeholders to persuade the School Board to act NOW on IAQ issues to avoid deferred maintenance costs.
- Follow up and contact the people and resources on the lists distributed during the workshop for more information, including facts on new environmentally safe products and innovative technologies that can save schools money.

Session: Making Time for IAQ Management

The *IAQ TfS* Kit is a tremendous resource for schools to use to identify and remedy indoor air quality problems. While many schools recognize the need and importance of good IAQ, they may not see how they can fit it into their busy agendas. This breakout session, sponsored by the American Lung Association, was designed to help remove barriers to using the Kit and to equip participants with the knowledge and tools they need to assist their schools' IAQ coordinators in making time for air quality management.

EPA staff presented four strategies:

- Break the IAQ management plan into smaller, more manageable components—people are more likely to take action when they are given a step-by-step approach to tackling an issue.
- Develop a realistic timeline for implementation.
- Find the motivation for each stakeholder group to participate—people will find the time to do things that they consider high priorities.
- Cite examples of creative ways to implement the Kit.

In dealing with the first strategy, this session introduced the *IAQ TfS* Road Map. This tool breaks down the process of implementing the Kit into 10 manageable steps.

Using the Road Map, participants then created a timeline for developing a plan to implement the Kit. They concluded that community, staff, and student involvement is essential to sustaining an IAQ team. In addition, they thought it would be helpful for schools to create an agenda of items to fix each year. This agenda would allow schools to keep themselves on a realistic track for implementing IAQ improvements. Making this agenda public would keep school and community members informed of IAQ efforts. ALA affiliates cited examples of how they helped schools find time.

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10 Award Winners!

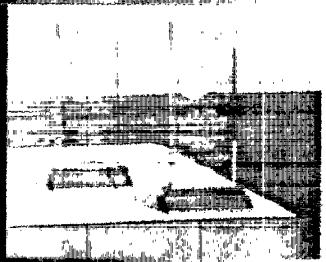
U.S. EPA
Indoor Air Quality Tools for Schools

Excellence Award

National Leaders in Improving Indoor Air Quality in Schools

2000

Having each been nominated by one of EPA's 10 regional offices, these winning districts received the first annual Indoor Air Quality Tools for Schools Excellence Awards at a reception held the first evening of the Symposium. Bob Perciasepe, EPA Assistant Administrator for Air and Radiation, was on hand to present the awards and congratulate the winners in a room packed with their peers.



William Blackstone Elementary School, Boston, MA, EPA Region 1

Bob Perciasepe (left), congratulates Baldwin Union Free School District

A culturally diverse school in Boston's South End, Blackstone Elementary had been beset for years with serious IAQ problems caused by water infiltration and inadequate ventilation. Students showed high asthma rates, and the school experienced high rates of teacher and student absenteeism. As a result, Blackstone was one of three Boston schools selected as pilots for EPA's *Indoor Air Quality Tools for Schools* program. Based on the information garnered from completed *IAQ TfS* checklists and walkthroughs, the IAQ team convinced the community and administration to commit to solving the environmental problems in the school. Since that time, roof repairs have been completed and plans made to replace old carpet with tile, install new energy-efficient lighting, and replace old ceiling tiles. The school nurse also intends to document student health and asthma cases. Blackstone Elementary now assists other Boston schools in implementing the *Indoor Air Quality Tools for Schools* program.

Mary Smith, Director, EPA Indoor Environments Division (far right), with the IAQ TfS Award Winners

Baldwin Union Free School District, Baldwin, NY, EPA Region 2

Baldwin School District officials were among the first to implement the *IAQ TfS* Kit. During the early stages of implementation, many staff members showed their concern for school IAQ by completing checklists. The checklists and walkthroughs indicated a need to further educate the staff about ventilators in their classrooms, food policies, pest management, and the use of personal cleaning supplies. As a result of these findings, the district developed a comprehensive IAQ management program, including an IAQ Manual for staff, parents, students, and residents of the community. Additionally, the school district began to aggressively use low-odor, low-Volatile Organic Compound (VOC) paints, safer cleaners, and HEPA vacuum cleaners. IAQ team members from Baldwin regularly speak at public forums to encourage other schools to adopt the *IAQ TfS* Kit.

Bensalem Township School District, Bensalem, PA, EPA Region 3

Bensalem Township School District implemented the *IAQ TfS* Kit in response to citizen concern about poor IAQ in schools. Teachers also reported problems on their classroom checklists, indicating frustration over heating, cooling, moisture, and odor issues. Six Bensalem schools were pilot *IAQ TfS* partners; all have identified and mitigated a long list of IAQ problems, ranging from bird nests in HVAC systems to the presence of chlorine in classroom

air. Using the Kit, the district created management plans and *IAQ TfS* notebooks catering to the specific IAQ needs and concerns of each school. (See Interview with Tom Vasek on pages 8-9 for details.)

School District of Okaloosa County, Fort Walton Beach, FL, EPA Region 4

With 30,000 students in 38 schools, Okaloosa County used to receive hundreds of IAQ complaints each year. In 1996, the school board adopted the *IAQ TfS* Kit as mandatory policy for all facilities. It also became the legal basis for dealing with the district's remaining IAQ litigation. Now, thanks to aggressive implementation of the *IAQ TfS* Kit, the district receives considerably fewer IAQ complaints. School officials attribute this success to the completion of repairs, management, and effective communications throughout the process.

New Ulm Public Schools, New Ulm, MN, EPA Region 5

New Ulm Public Schools, a rural school district of modest means, embraced the *IAQ TfS* Kit after realizing in 1996 that carpet upgrades adversely affected air quality and student health. A preliminary assessment revealed that many of the classrooms were not getting enough fresh air. Also, mold on pipe insulation and ceiling tiles was discovered; corrective actions were taken as a result of these findings. A district-wide indoor air quality program was established, involving the staff, students, and each of the unions represented in the school district. This program, which made good air quality in the learning and teaching environment a priority, is regarded as a national model for rural school districts with limited resources.

El Paso Independent School District, El Paso, TX, EPA Region 6

El Paso Independent School District responded to mounting indoor air quality concerns by implementing the *IAQ TfS* Kit and using the program to establish an air quality survey, response protocol, and problem prevention program for 72 of its 84 school campuses. District officials report that the *IAQ TfS* Kit helped them develop a highly organized, logical response program for indoor air quality issues. This fostered district-wide teamwork, resulting in a higher quality learning environment. El Paso plans a follow-up training session to equip the remaining schools to use the Kit. The district also intends to hire a full-time IAQ manager and purchase basic monitoring and testing equipment to assist the manager in investigating complaints. Ongoing staff training will establish a level of expertise and promote favorable IAQ environments in school buildings.

Bob Perciasepe with Adina Neale, Saugus USD

Indianola Community School District, Indianola, IA, EPA Region 7

Indianola Community School District became aware of *Indoor Air Quality Tools for Schools* through an Iowa Department of Education workshop. The district chose Irving Elementary School as a demonstration school, formed an IAQ team at the school, and named a district IAQ Coordinator. During walkthroughs, staff found numerous, significant air quality problems ranging from a lack of air conditioning to water damaged supplies. The *IAQ TfS* Kit helped the district develop a management plan and build support for the IAQ program among teachers and other staff. Teachers at the school are very enthusiastic about the program and have noticed significant environmental improvements since it began. The success of *Indoor Air Quality Tools for Schools* at Irving Elementary has led to implementation of all or parts of the program district wide.

Clear Creek School District, Evergreen, CO, EPA Region 8

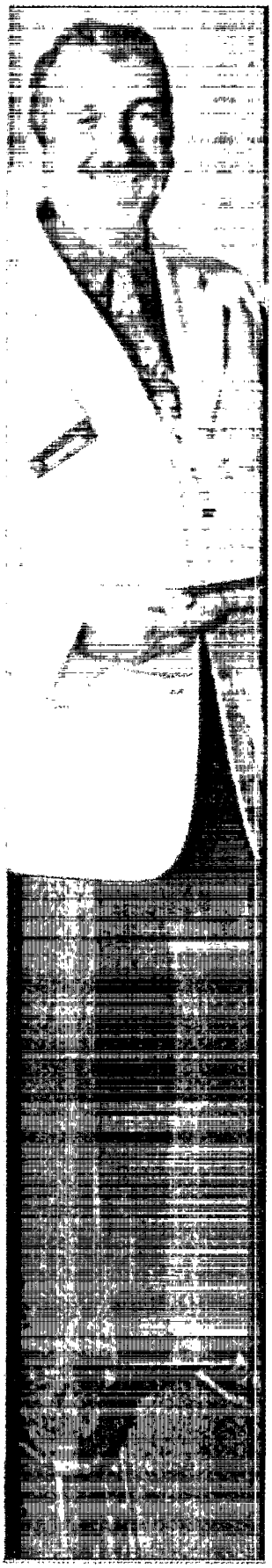
After attending a workshop on indoor air quality in schools, a King-Murphy Elementary teacher brought the Kit to the attention of the district's Facility and Maintenance Supervisor. District officials agreed to pilot the *Indoor Air Quality Tools for Schools* program at King-Murphy and received assistance from the EPA Region 8 office. The school formed a steering committee, identified issues to be addressed, and developed a 5-month implementation plan. As a result of the implementation activities, the committee developed a set of IAQ policies and communicated them to school staff. These policies led to rapid improvements in the indoor air. Committee members and other school staff noticed a dramatic increase in indoor comfort levels and a decrease in IAQ-related complaints. Successful use of the Kit has helped pave the way for other environmental issues to be addressed, and the district plans to expand the IAQ program to other schools.

Saugus Union School District, Saugus, CA, EPA Region 9

Indoor Air Quality Tools for Schools served as the key to ending an indoor air quality crisis for Saugus Union, which started when blood tests for one student revealed exposure to arsenic, formaldehyde, phenol, and mold toxins suspected of originating in a portable classroom. The district immediately took action using the *IAQ TfS* Kit as a guide, checking all of the schools' ventilation systems. Furthermore, the District established paid IAQ coordinator positions for the district and for each school. The Kit enabled Saugus to implement a comprehensive program that remediated indoor air quality problems, included community members in the process, and rebuilt public trust in the school system.

Sedro-Woolley School District, Sedro-Woolley, WA, EPA Region 10

High levels of carbon dioxide (CO_2) became the focus of Sedro-Woolley School District's indoor air improvement initiatives after an *IAQ TfS* walkthrough revealed problems in an elementary school, particularly in the portable classrooms. The district approved special funds to address its IAQ issues and implemented upgrades and behavioral changes. Significant improvements in air quality have already been achieved. A close relationship with the Northwest Air Pollution Authority (NWAPA) helps the district continue to strive for good IAQ and healthy classrooms.



Bensalem Township School District —Interview with Tom Vasek, IAQ Coordinator

Bensalem Township School District, a small rural school system in southeastern Pennsylvania, had a record of academic achievement, excellent educators, involved parents, and, unfortunately, indoor air quality problems. But like a growing number of school systems, it has managed these indoor air quality problems using EPA's *IAQ TfS* Kit.

Tom Vasek, Bensalem's IAQ Coordinator, attended EPA's *IAQ TfS* Kit training in 1998 in order to implement an IAQ program in Bensalem schools. The school district elected to start a pilot *Indoor Air Quality Tools for Schools* program in three schools of varying age. The IAQ Team, headed by Mr. Vasek, created a management plan, and *IAQ TfS* notebooks catered to the specific problems and concerns of each facility.

At the first National *Indoor Air Quality Tools for Schools* Symposium, Bensalem Township School District was honored as a winner of an *IAQ TfS* Excellence Award for its achievements. As a keynote speaker and expert panelist, Mr. Vasek shared his district's IAQ experiences with participants at the Symposium. Later, in an interview, he shared Bensalem's experience in greater detail.

Question: What was the catalyst for you to become involved with the Indoor Air Quality Tools for Schools program?

Answer: We first joined the program in 1998, but prior to that we had some serious IAQ problems. The most threatening IAQ issues in our district stemmed from Shafer Middle School. Faculty and staff were linking their complaints about odors and poor ventilation at the school to their health problems. The teachers contacted the National Institute of Occupational Safety and Health (NIOSH) to investigate the school. NIOSH found some areas that needed to be corrected to improve the IAQ in the building, and Bensalem took immediate action on these items. Unfortunately, the IAQ problems resulted in legal action. This was a harsh wake-up call for the District, and it led us to reevaluate our IAQ management plan.

Question: How did you learn about EPA's Indoor Air Quality Tools for Schools program?

Answer: After the problems at Shafer Middle School, I called EPA looking for training opportunities on IAQ issues. I was fortunate enough to have made contact with Jennifer Keller (at EPA) who sent me an application for the next *IAQ TfS* Kit training session. Ms. Keller also put us in touch with Fran Doherty and Cristina Schulingkamp from EPA's Region 3 office in Philadelphia. They provided group training sessions for other district staff and me to help us learn more about IAQ issues. They also served on the IAQ Team that we formed to implement the program in our schools.

Question: In addition to training, what type of assistance did EPA provide?

Answer: In the beginning, all the help that I received was from the EPA, especially from the Regional office. The Region 3 staff have always been available to provide support and encouragement. They not only trained me and my staff on IAQ issues, but also trained us to use the Kit. They knew how beneficial it was to keep teachers, the principal, and staff involved, and they actively worked with us to accomplish this. Their participation on the IAQ Team made it less intimidating for us to tackle our school's IAQ problems. EPA has helped us every step of the way!

Question: How did you convince your School Board to adopt and implement the Indoor Air Quality Tools for Schools program?

Answer: It was tough. The meetings, in the beginning, were filled with teacher frustration and sentiments of "Nobody will listen, nobody will care." I left many meetings wondering, "Why am I even trying?". But eventually the Board saw the benefits of implementing an IAQ management plan, and they elected in September 1998 to join the *IAQ TfS* program.

Question: How did you motivate the faculty and staff to get involved with implementing the IAQ TfS Kit?

Answer: I tried to keep everyone well-informed of IAQ issues, changes, and events. If we were doing walkthroughs in the schools, changing equipment, or having meetings, that would be mentioned in the daily intercom announcements. We also provided group training sessions for teachers and school staff to help them learn more about the program and discuss their IAQ concerns. All this communication really helped everyone build a foundation of knowledge about IAQ

issues. It also raised staff awareness, which made it easier to pinpoint problem areas in our schools, and garnered their support for changes.

Question: What kind of feedback, positive or negative, have you received from your faculty, staff, and School Board?

Answer: I really didn't receive too much negative feedback. Sure, school staff were skeptical and frustrated with IAQ issues. It was hard to get them to support changes at first, but once everyone became more educated about indoor air quality and its effects, improving IAQ became a common goal for everyone. I actually received some great comments from the principals of the first schools that implemented the Kit. They thought the program helped teachers express their frustrations and concerns in a productive manner. One principal told me how helpful it was to have contractors involved in our group IAQ meetings because, to him, it added credibility to claims of IAQ problems. This particular principal also noticed how much the morale of his teachers had increased because their concerns were actually being addressed.

Question: Was the process worth it?

Answer: Since you're asking me this question 3 years after we began *IAQ TfS* Kit implementation, I have to say yes. It sure didn't seem that way in the beginning. It was overwhelming at first with all the complaints and no IAQ program in place to stand behind. Plus there was a learning curve involved. I'd always heard about IAQ, but I never thought it could be this big of an issue. The surveys and walkthroughs outlined in the Kit helped to make the task less daunting. Teachers were diligent about filling out their checklists, and the walkthroughs identified many IAQ issues. Once we had concrete IAQ problems to solve, the process became more manageable. And we were encouraged by the support and enthusiasm of the school principals.

Question: Would you do anything differently?

Answer: Looking back on the whole process, I wish we had caught problems before they escalated to involving legal action. We lost the trust of teachers and staff because of this. Education was key to regaining their support. I wish it could have happened sooner, though, because we could have avoided some hostility in the beginning. I also would have liked to have gotten buy-in earlier from the top school district officials. They are the key players when dealing with finance issues and implementing new management programs.

But overall, I'm pleased with our accomplishments. There is an old saying, "You can't argue with success." And I definitely think that, with the Kit as a guide, we have made our IAQ management plan successful.

Question: From your experience, do you have any advice for other school systems?

Answer: Don't feel intimidated because this is an EPA program. In a lot of cases people see EPA as the "governmental hand," but EPA staff have proven to be a great resource for us. They have the knowledge and experience of helping schools get started with implementing effective and efficient IAQ programs. The training sessions that they conducted and the expertise they provided made addressing IAQ problems manageable and a more enjoyable experience. Plus, all their time and effort is at no cost to the school—that is a great benefit, especially considering School Board buy-in and tight school budgets. The *Indoor Air Quality Tools for Schools* program is a voluntary program, and EPA is dedicated to helping you reach your goals to obtain good IAQ in your schools. I know that this extends beyond Region 3 because I have met EPA people from other regions. When I recently went to the 1st Annual Symposium and Awards Ceremony, it was so wonderful to meet all these key players in EPA and supporting associations that were all just as committed and dedicated to the cause of IAQ as the regional representatives I had met.

Question: How has winning one of the first annual IAQ TfS Excellence Awards helped you in your cause to alleviate poor IAQ in your school?

Answer: Winning the award was a wonderful experience! Mike Moore, the Facilities Manager, and I accepted the award together. It was such an honor to be recognized for our efforts, especially in front of our peers and schools that had been through the same experiences. The award made all the frustrating moments of the process worth the effort and dedication. When I am asked to speak about the Kit and my experience with the program, I sometimes bring my award with me, so the schools can see first hand that the *Indoor Air Quality Tools for Schools* program will recognize their accomplishments.

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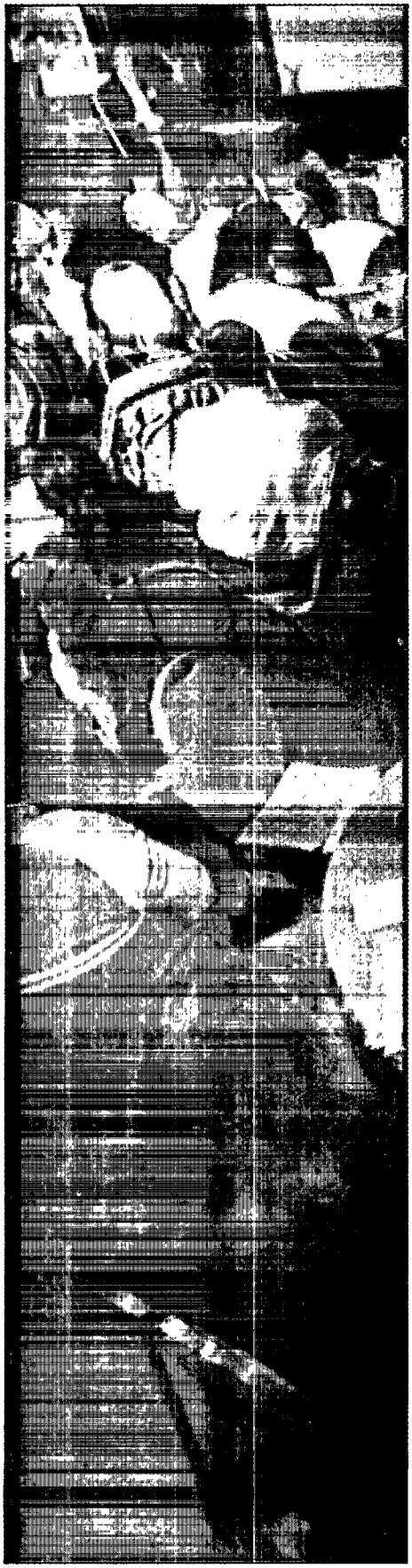
Symposium Breakout Sessions



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Session: Opening the Lines of Communication—Building an IAQ Team

Forming an effective indoor air quality team can be a difficult task. Good communication is essential to implementing the *IAQ TfS* Kit. This session, sponsored by the National Education Association, focused on four key issues in IAQ team formation and management.

What are the roles and responsibilities of each IAQ team member in the school?

Session participants responded that the roles and responsibilities should be outlined and assigned according to a team member's strongest skill or area of expertise. Specifically, the IAQ team should be composed of an IAQ Coordinator, principals, teachers, custodians, facility managers, school nurses, food service providers, parents, students, School Board members, and external stakeholders. Obviously, the IAQ Coordinator has a lead role to play and should possess the following skills and capabilities: communications; facilitation; time management; the ability to work well with and motivate different types of people; and experience developing an action plan, delegating responsibilities, and recruiting outside support. It also helps if the IAQ Coordinator is passionate about improving indoor air quality.

How can IAQ teams minimize the communication challenges that emerge between team members?

In identifying solutions to overcome these challenges, participants stressed that team member roles should be clearly defined. The IAQ team should prioritize its goals in the beginning and develop an action plan to achieve them. Team members should be treated equally so that they feel respected and valued. The IAQ Coordinator can help ensure that this happens through adept facilitation at meetings and his/her leadership of the team. Maintaining written minutes of each meeting and creating an IAQ Web site to post events and updates can keep team members informed of and active in the IAQ team's progress.

How can IAQ teams recruit parents and other external stakeholders to the IAQ team?

Solutions included identifying stakeholders who are passionate about IAQ and health issues, particularly children's health, and linking IAQ to other issues of concern in the community. Once potential team members have been identified, interview them to make sure that their goals align with the schools' goals and that they can be useful to the IAQ team. Schedule IAQ team meetings at convenient times and, if possible, provide childcare. Also, give parents and external stakeholders roles that they feel comfortable doing. Advertise the meetings through the local media and at town and local organization meetings.

How can mentors help you meet the challenges and where can you find them?

Mentors can be peers, external stakeholders, and consultants who have had the experience of developing an IAQ team and management plan and implementing the Kit. They can provide education, technical assistance, and referrals to resources. Mentors can share their success stories and keep others from "reinventing the wheel." They can also act as a sounding board for venting frustrations and brainstorming solutions to challenges. Through their networking contacts, mentors can also help identify IAQ team members. EPA is in the process of developing a mentoring program to put schools in contact with other knowledgeable school personnel. Look for more information on the *Indoor Air Quality Tools for Schools* mentoring program at www.epa.gov/iaq/schools.

Breaking the Mold

EPA's Indoor Environments Division hopes to make the job easier for building managers faced with mold contamination when it releases new mold-remediation guidelines in 2001. These guidelines list steps for identifying mold contamination, finding the sources of excess moisture, and determining the extent of both problems. The guidelines also detail what is needed to clean up the contamination and how to isolate it so that exposure is minimized. While awaiting EPA's new guidelines, you can find information about mold contamination in schools at www.epa.gov/iaq/schools.

Teach Students To Go with the Flow

Here's a simple project on airflow that teachers can use to incorporate IAQ awareness into their lesson plans. You will need to borrow a smoke source or other tool for identifying airflow and direction from your facilities department or EPA Regional office. First, have students create a scale drawing of the classroom (this could be incorporated into a mathematics lesson). With the borrowed tools, students then investigate air flow at various points around the room—near the doors and windows, the floor and ceiling, and the air conditioners or ventilation intakes/outlets—taking particular note of instances of no air movement. The time of day and any other factors that might affect airflow such as "ventilator off" or "door open," should be recorded on their scale drawings. Then as a group, brainstorm about what could be done to make the indoor air quality healthier in terms of ventilation. This would also be a good time to invite the school facilities manager in to give a short presentation to the class about indoor air quality.

Carver Elementary Is Breathing Easy

In 1998, an IAQ inquiry by the principal of Carver Elementary in San Francisco, California became the impetus for the school's participation in EPA's *Indoor Air Quality Tools for Schools* program. Carver, which has approximately 390 students in grades K-5, had a higher than normal incidence of asthma and other respiratory illnesses. The frequency of student visits to the front office to use their asthma inhalers prompted the school principal to seek outside assistance. With EPA's help, Carver implemented many of the low-cost improvements outlined in the *IAQ TfS* Kit, resulting in an almost immediate decrease in the number of office visits for asthma inhalers and asthma episodes. The long-term dedication of the IAQ Team and teachers and staff at Carver led to the development of an Asthma Task Force, an IAQ Implementation Committee, an Integrated Pest Management Program, a Children's Environmental Health Department, and a Health and Environmental Resources Center in San Francisco. Many schools in San Francisco are now using the Kit. Your school system can do the same! Learn how by visiting www.epa.gov/iaq/schools/ to read the entire case study for D.W. Carver and Charles Drew Elementary Schools or find out more about EPA's *Indoor Air Quality Tools for Schools* program.

A Breath of Fresh Air

Did you know that asthma is the leading cause of school absenteeism, with 10 million missed school days each year due to asthma? For the 5 million US children with asthma, indoor air quality in schools is a major day-to-day concern. EPA's *IAQ TfS* Kit contains information, suggestions, and resources for managing asthma in the classroom and improving school IAQ. Look for the upcoming *IAQ TfS* Bulletin for more information on how the Kit can help your school and child better manage asthma in the classroom.

Information Resources

To Order the *Indoor Air Quality Tools for Schools* Kit:

To order the *Indoor Air Quality Tools for Schools* Kit free of charge, call the EPA IAQ Hotline at (800) 438-4318. The Kit's printed materials are now available on CD-ROM, or you can download a text-only version from our Web site at www.epa.gov/iaq/schools.

We'd Like to Hear From You!

In future editions of the *IAQ Tools for Schools* Bulletin, we would like to share some of your experiences with indoor air quality issues, successes, and challenges. Whether you use the guidance in our Kit, or another means of improving the air quality in schools, we would like to hear from you.

Contact Information

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For Additional Information About Articles in this Issue:

EPA Indoor Air Quality Hotline: 1-800-438-4318.

EPA *Indoor Air Quality Tools for Schools* Web site: www.epa.gov/iaq/schools.

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